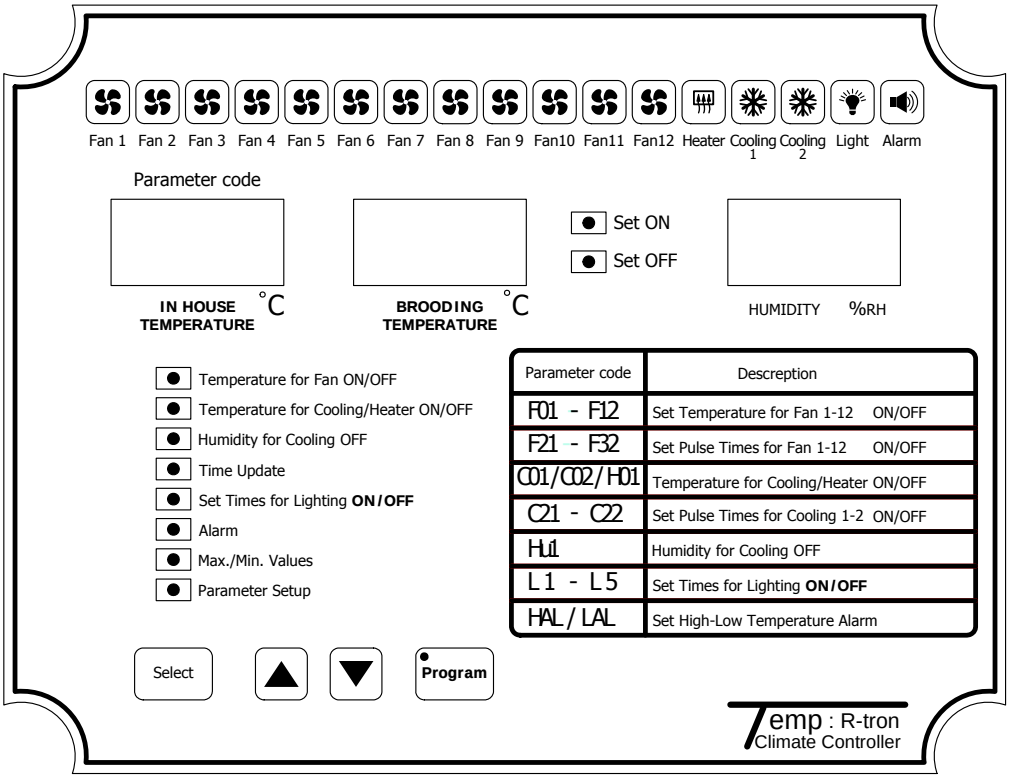
Installation Instructions & User Manual

Temp R-tron plus
Climate Controller

Note: Read the entire instruction manual before starting the installation



Parameter code	Descreption
F01 - F12	Set Temperature for Fan 1-12 ON/OFF
F21 - F32	Set Pulse Times for Fan 1-12 ON/OFF
C01/C02/H01	Temperature for Cooling/Heater ON/OFF
C21 - C22	Set Pulse Times for Cooling 1-2 ON/OFF
Hu1	Humidity for Cooling OFF
L1 - L5	Set Times for Lighting **ON/OFF**
HAL / LAL	Set High-Low Temperature Alarm

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Welcome!

Congratulations on your purchase of this Temp R-tron climate controller. This manual provides you with the information necessary for installation and operation of controller. It describes functions according to

SIAM WATER FLAME
SOFTWARE VERSION
RELEASED IN **JANUARY 2009**

Read this manual carefully chapter by chapter. Please enter the serial number indicated on the side of the controller in the below for future reference.

FOR CUSTOMER USE
MODEL NO. **TEMP R-TRON plus**
SERIAL NO. _____

NOTE

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1 SAFETY CONSIDERATIONS

Read and follow manufacturer instructions carefully. Follow all local electrical codes during installation. All wiring must conform to local and national codes. Improper wiring or installation may damage Climate Control.

Recognize safety information. This is the safety-alert symbol △. When you see this symbol on the equipment and in the instruction manual, be alert to the potential for personal injury.

CAUTION Follow installation instruction carefully

Before installing Temp R-tron climate control
Turn off all power to equipment. Electrical
Shock can cause personal injury or death

WARNING

Siam Water Flame shall not be liable for consequential or incidental damages as a result of incorrect setting and a non- or partially functioning installation.

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2 FEATURE

2.1 INTRODUCTION

Temp **R-tron plus** is a climate controller designed for environment and lighting control in most type of livestock hoses. It maintains a desire target temperature and humidity by controlling the operation of fan, heater and cooling component. It monitors inside and outside temperature with single or double sensors for indoor. The humidity monitoring is applicable with humidity for internal house. The set point temperature and humidity are maintained according to pre-set parameters. Fans, cooling components, and alarm are set as differentials point. Fan 1-12 can be set either differential ON/OFF or Pulse width ventilation.

Temp R-tron controller provides information under the menu items temperature/humidity data, value, target, fan/cooling/alarm set point, growth day, time, and light schedule. These menu functions are easily accessed by pushing a “Select” button the text display makes operation easy and comprehensible. LED Luminous display shows these functions very bright and clear text with a related numerical value.

2.2 STANDARD FEATURES:

12-Fans or 12-Step for Ventilation
Fan and cooling system is operated when the temperature reach preset temperature.

2 Independent Pump Control
Pumps is controlled separately according to temperature and timer cycle 0-120 minute (0.1 = 10 second)

Illuminate 7 Segment Display
Inside temperature, brooding temperature and inside humidity will refresh value rate very 5 seconds.

Ventilation Compensation for High Humidity
When humidity is too high, the function is automatically change the cooling cycle according to preset time ON/OFF cooling components. It reduces humidity.

Humidity Restriction
Stop cooling pump when the humidity is higher than the set point.

Heat Stress Index
Calculate and display Heat Stress Index value by the summation of temperature and humidity.

Minimum Ventilation Cycle
When air velocity is too low, up to 12-step fans of fan can be operated either continuously or intermittently to reduce the level of humidity or ammonia and supply fresh air to the house.

Lighting Cycle
Preprogram time On/Off for lighting up to 5 cycles/day

Historical Data record
Highest / lowest temperature and humidity for the last 2 days
Heat Stress Index for the last 2 days.

Program Data Duplicate
Up load or down load program data by "Temp Data Loader" to reduce entering time

Sensor recalibration
Sensor can be recalibrated on site from the controller

Alarm Output
High/Low temperature alarm output
Heat Stress Index alert
Temperature sensor is damage or disable

Average Indoor Temperature Sensors
Two Temperature sensors can be connected to measure two areas in the house if average room temperature is needed.

Overload and Overvoltage Protection

2 Temperature Sensors

Humidity Sensor
Measure 20-100%RH, Resolution 0.1 ^{o}C

Temperature and Humidity Displays
Large number display with digital LED luminous Display

Non Volatile Memory
All programming and set points stored in non-volatile memory, and are never lost in power failure

Control Locking / Password
The setting can only be adjusted by authorized if this feature is active.

Delay Timer on Starting of Controller
The controller delays to turn ON all components by preset time. To avoid over electrical demand after power failure.

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2.3 TECHNICAL DATA

Electrical	
Supply voltage	220/230 VAV
Nominal frequency	50 Hz
Power consumption	20 Watts
Fuse	250 VAC, 500 ma fast flow
Temperature Sensor	
Temperature range	0 – 50 ^{o}C
Temperature figure	0.1 ^{o}C
Accuracy figure	+/- 1.0%
Indoor temperature	1 sensor
	2 sensors (average room temperature)
Outdoor temperature	1 sensor
Humidity Sensor	
Humidity range	20 -100 %RH
Humidity figure	0.2 %RH
Accuracy	+/- 5%
Indoor humidity sensor	1 sensor
Fan	
Number of fan groups	12 groups
Relay	Max. 250 VAC 5 ampere, AC 1
Fuse	Max. 250 VAC 4 ampere fast blow fuse
Pump	
Number of control pumps	2 cooling
Relay	Max . 250 VAC 5 ampere, AC 1
Fuse	Max. 250 VAC 4 ampere fast blow fuse
Lighting control	
Number of periods	5 periods/day
Relay	Max . 250 VAC 5 ampere, AC 1
Fuse	Max. 250 VAC 4 ampere fast blow fuse
Alarm	
Number of alarm control	1 set
Relay	Max . 250 VAC 5 ampere, AC 1
Fuse	Max. 250 VAC 4 ampere fast blow fuse

2.4 FRONT PANEL & DISPLAY

The front panel composes of LED lamp operational status, LED lamp programming mode, seven-segment display and function key.

TEMPERATURE HUMIDITY MODE:
Access to temperature and humidity data and calibration.

MIN. / MAX. VALUES MODE:
Access to historical data.

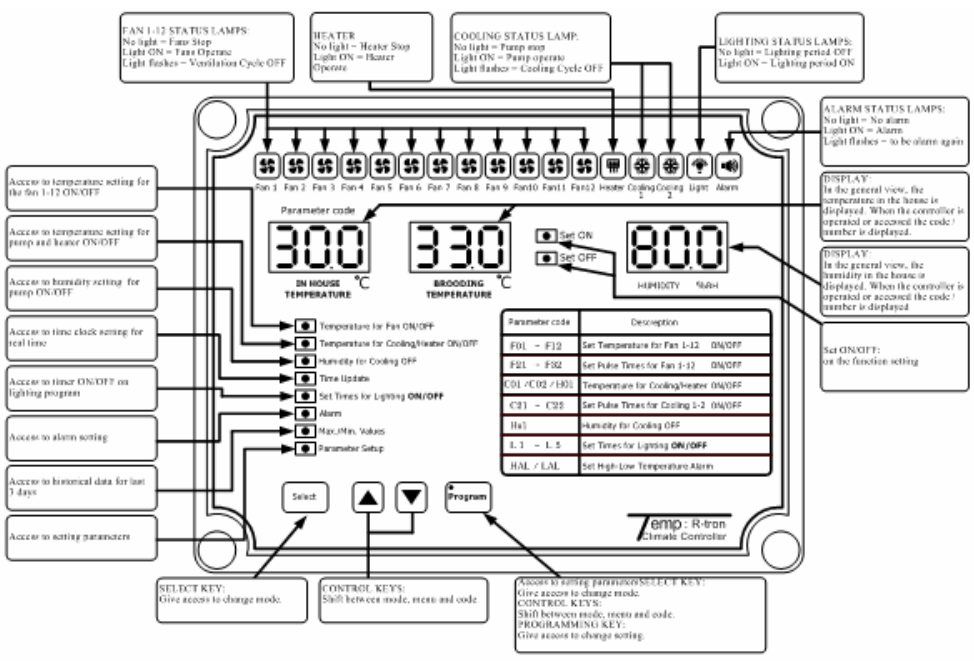
TARGET TEMPERATURE / T-CURVE MODE:
Access to curve menu.

GROWTH DAY MODE:
Access to growth day menu.

TIME UPDATE MODE:
Access to time menu.

LIGHTING MODE:
Access to lighting menu.

PARAMETER MODE:
Access to service menu.


FAN 1-12 STATUS LAMPS:
No light = Fans Stop
Light ON = Fans Operate
Light flashes = Ventilation Cycle OFF
HEATER
No light = Heater Stop
Light ON = Heater Operate
COOLING STATUS LAMP:
No light = Pump stop
Light ON = Pump operate
Light flashes = Cooling Cycle OFF
LIGHTING STATUS LAMPS:
No light = Lighting period OFF
Light ON = Lighting period ON
ALARM STATUS LAMPS:
No light = No alarm
Light ON = Alarm
Light flashes = to be alarm again
Fan 1 Fan 2 Fan 3 Fan 4 Fan 5 Fan 6 Fan 7 Fan 8 Fan 9 Fan10 Fan11 Fan12 Heater Cooling 1 Cooling 2 Light Alarm
Parameter code
300
IN HOUSE TEMPERATURE °C
330
BROODING TEMPERATURE °C
Set ON
Set OFF
800
HUMIDITY %RH
DISPLAY:
In the general view, the temperature in the house is displayed. When the controller is operated or accessed the code / number is displayed.
DISPLAY:
In the general view, the humidity in the house is displayed. When the controller is operated or accessed the code / number is displayed
Set ON/OFF:
on the function setting
Access to temperature setting for the fan 1-12 ON/OFF
Access to temperature setting for pump and heater ON/OFF
Access to humidity setting for pump ON/OFF
Access to time clock setting for real time
Access to timer ON/OFF on lighting program
Access to alarm setting
Access to historical data for last 7 days
Access to setting parameters
Temperature for Fan ON/OFF
Temperature for Cooling/Heater ON/OFF
Humidity for Cooling OFF
Time Update
Set Times for Lighting ON/OFF
Alarm
Max./Min. Values
Parameter Setup
Parameter code
Description
F01 - F12
Set Temperature for Fan 1-12 ON/OFF
P21 - P32
Set Pulse Times for Fan 1-12 ON/OFF
C01 /C02 / H01
Temperature for Cooling/Heater ON/OFF
C21 - C22
Set Pulse Times for Cooling 1-2 ON/OFF
Hu1
Humidity for Cooling OFF
L 1 - L 5
Set Times for Lighting ON/OFF
HAL / LAL
Set High-Low Temperature Alarm
Select
Program
Temp: R-tron
Climate Controller
SELECT KEY:
Give access to change mode.
CONTROL KEYS:
Shift between mode, menu and code.
Access to setting parameters/SELECT KEY:
Give access to change mode.
CONTROL KEYS:
Shift between mode, menu and code.
PROGRAMMING KEY:
Give access to change setting.

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3 INSTALLATION

3.1 PREPARATION

1) Proper Installation of the controller will accomplished by these step by step instructions. If you are unsure about any of these steps, call a qualified technician for assistance.

2) Make sure your fan/pump is working properly before beginning installation of the controller.

3) Carefully unpack the climate control. Save the screws, connectors, wall anchors, sensors and instructions.

Please check the following accessories are supplied with your Temp R-tron climate controller

Temp R-tron Climate Controller @ 1 unit	Temperature Sensor @ 2 pieces
Humidity Sensor @ 1 piece	Backplate @ 1 pieces Screw @ 2 pieces
Installation Instruction and User's Manual @ 1 piece	

3.1.1 Mounting the Controller and the Sensors

3.1.1.1 Mounting the Temp R-tron Controller

1) Join the Backplate on the Controller

Join the Backplate on the back panel of the Temp R-tron with screws supplied.

Fig. 1 Joining The Backplate

2) Mounting the Controller

1) Hold the Temp R-tron with backplate in the vertical position against the wall.

2) Mark the location of the two mounting screws by pencil. Drill two mounting holes for the wall anchors.

3) Mount the Backplate joined with Temp R-tron on the wall anchors.

4) Place the front panel on side of the case in service position by mounting the two side screws of the panel in the two right holes of the case.

5) Rout wire through hole in bottom of the case.

6) Adjust length and routing of each wire to reach proper connector block and terminal at bottom of circuit board.

7) Match and connect component wires to proper terminals of each connector block as directed in the section of basic cable charts and basic wiring diagram.

Fig. Service Position

3.1.1.2 Mounting the Temperature and Humidity Sensors

⚠ Never suspend the sensor in a place where the weather has direct influence (not in the sun, not in place where the water can splash directly)

Indoor Temperature Sensor, suspend the sensor above the animals at least 1 meter height.

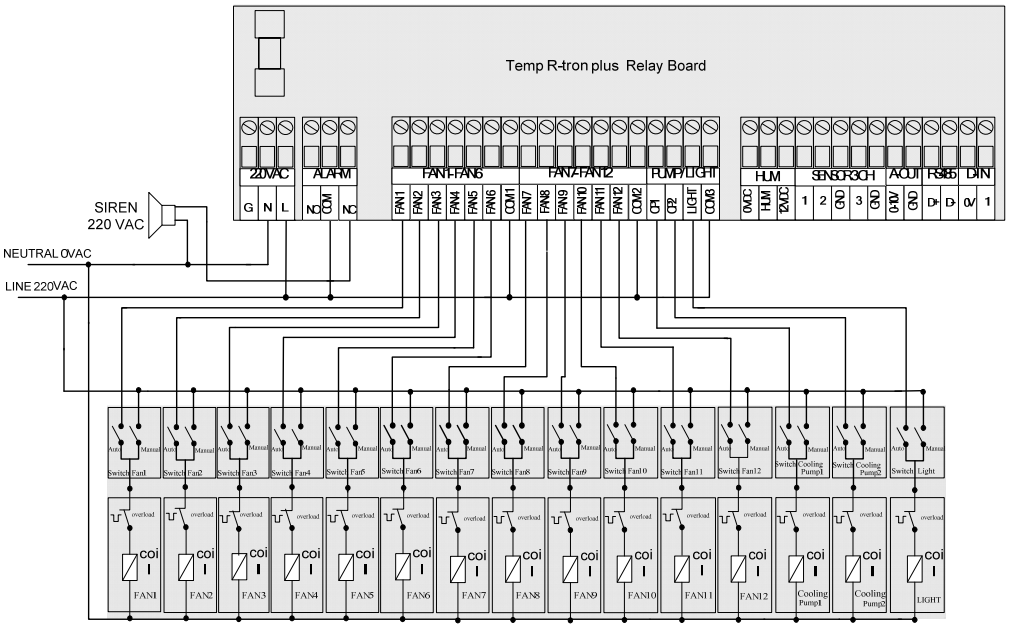
Outdoor Temperature Sensor, suspend the outdoor temperature sensor in a place where under shade.

Humidity Sensor, suspend the humidity sensor above the animals at least 1 meter height.

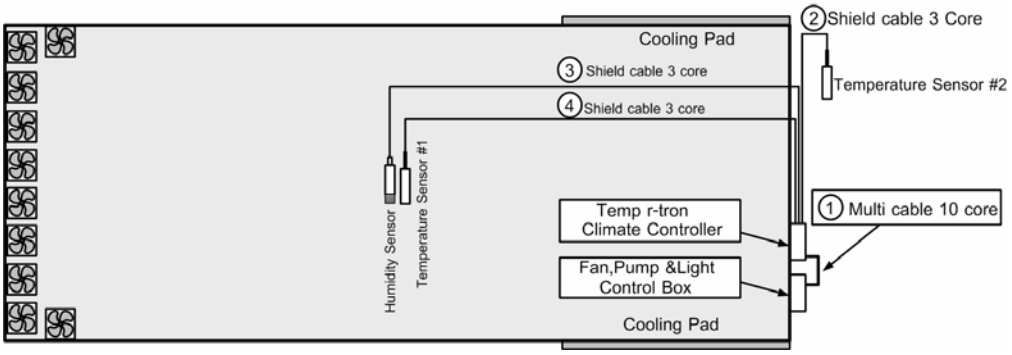
3.1.2 Cable Charts, Fans, Sensors, Pump and Alarm

The cable chart depicts how all components are connected. The components are adjustable depending on system requirements. The following charts replicate connectors of various components.

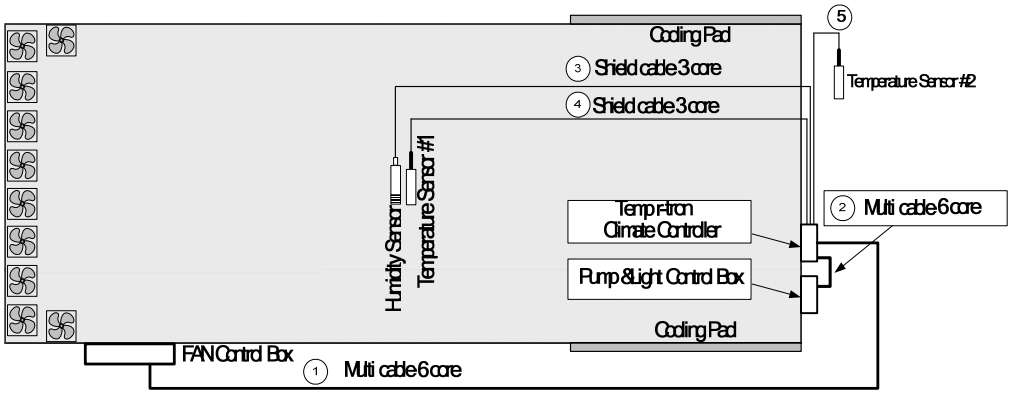
3.1.2.1 Connect wire controller to fan, pump (auto/manual)



3.1.2.4 Control Box in The Front of the House



3.1.2.5 Control Box at The Back End of the House



3.2 ELECTRICAL INSTALLATION

The electrical installation provide the information of connecting main voltage, basic wiring diagram, wiring diagrams of each individual component and installer setting.

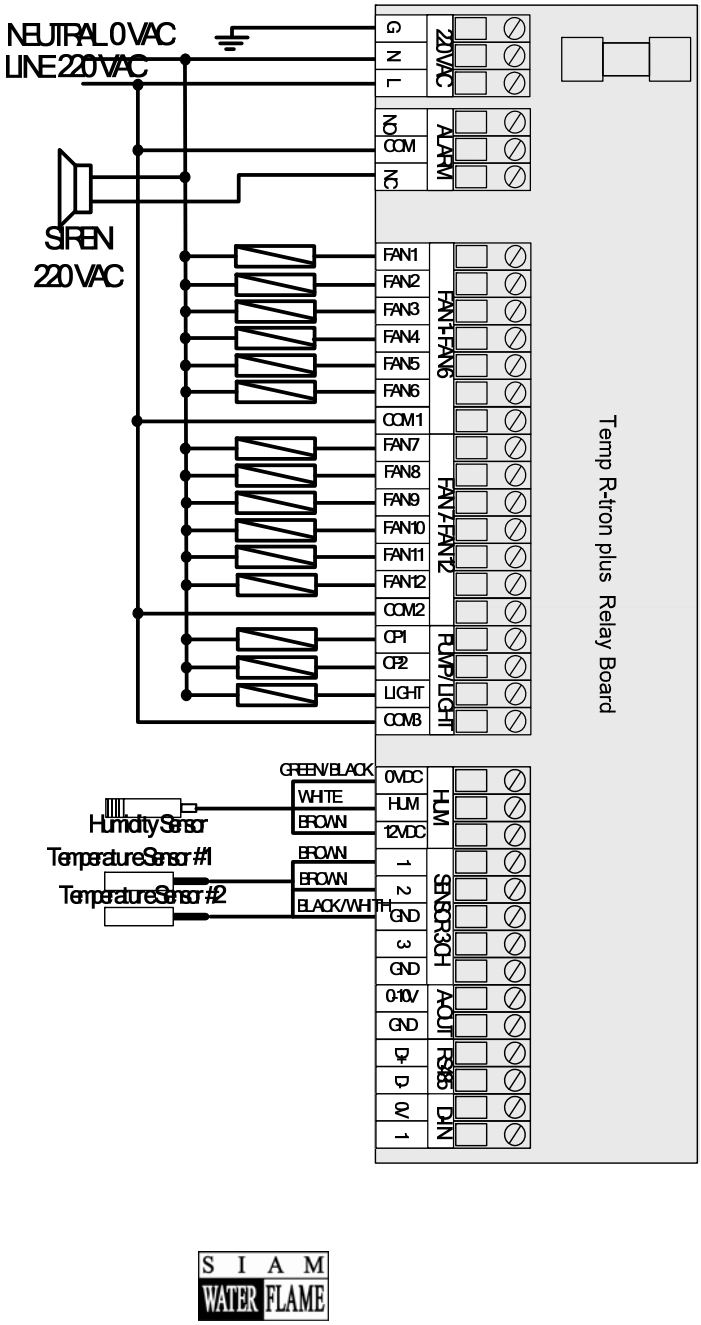
1) Disconnect power before installation
2) Use correct wires as shown on the connection diagram and follow all instructions.
3) Make all wiring connections and check them before applying power.
4) Incorrect wiring may cause permanent damage
5) To protect against lightning, place an over voltage protection device in the power supply of the controller. Provide an ample ground wire.

---

6) Ensure the controller is well grounded.

3.2.1 Basic Wiring Diagram

This basic wiring diagram depicts the installation of fully automatic control of fan and pump. Use correct wires as shown on the basic diagrams and follow all instructions. It is also shown on the backside of control panel in the controller.



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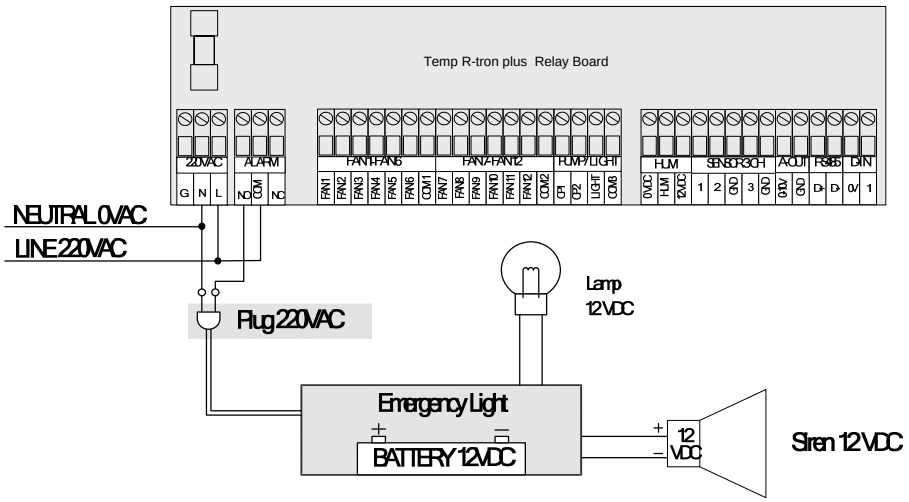
Install on the climate control connector marked	Function
Power Supply	
GND	Ground
N	Neutral 0 VAC
L	Line 220 Volt
Alarm	
NO	Normally Open
COM	Common
NC	Normally Close
Fan Control	
F 1-F6	Fan step 1-6
COM 1	Common
F7 – F12	Fan step 7-12
COM 2	Common
Cooling & Lighting	
CP1	Cooling Pump 1
CP 2	Cooling Pump 2
LIGHT	Lighting Control
COM3	Common
Humidity Sensor	
GND	Neutral (green wire)
HUM	Humidity Sensor (white wire)
12 VCD	12 Volt (brow wire)
Indoor Temperature Sensor	
1	Terminal + (brown)
GND	Terminal – (white wire/Black)
Outdoor Temperature Sensor	
2	Terminal + (brown)
GND	Terminal – (white wire/Black)

3.2.4 Wiring Diagram of Alarm and Emergency Light 12 VDC

It is advisable that the alarm contacts of the controller are connected to a separate alarm system. The emergency light with siren supplied by battery backup (12 VDC) can be connected as follow.



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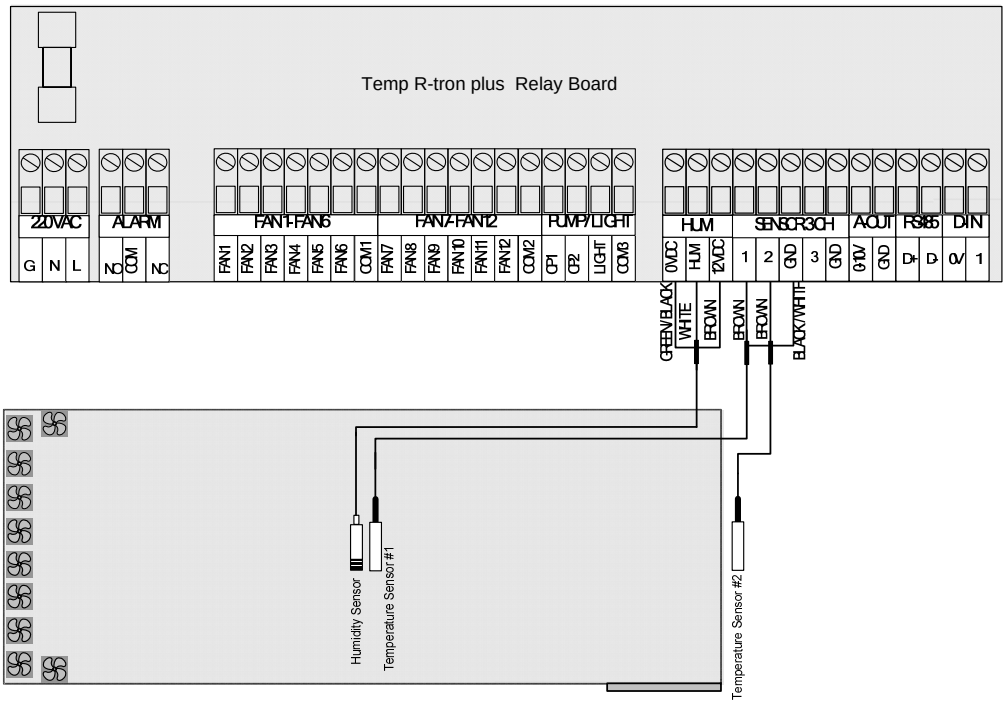
3.2.5 Wiring Diagram of Temperature Sensors

The indoor temperature sensor is connected to the T-IN 1 contacts while the outdoor temperature sensor is connected to the T-IN2 contacts.



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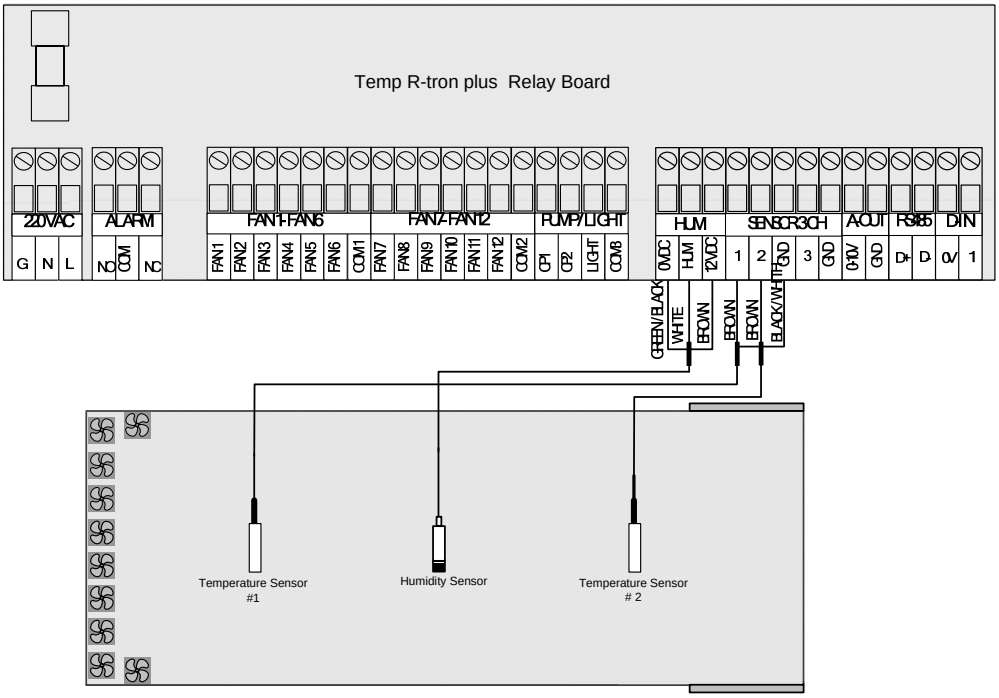
3.2.6 Wiring Diagram of Double Indoor Temperature Sensors

It is applicable that double temperature sensors measures two places of the house. The T-IN1 contacts are connected to temperature sensor #1 and the T-IN2 contacts are connected to temperature sensor #2. The controller calculates the house temperature by average the input value from both T-IN1 and T-IN2.

To use this function, the system must change to double indoor sensors operation explained in the chapter “Setting of Functions”



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3.3 SETTING THE PARAMETER OF THE FUNCTIONS

Initially, the parameters of each function are preset by factory so call “Factory Setting Parameter” The factory setting parameter in “Parameter Setup Mode” is changeable. In the beginning, the parameters of each function are set only one time and the controller operates according to the function setting.

It is necessary that function is recognizing since the parameters of program mode (chapter 5) must follow the function setting.

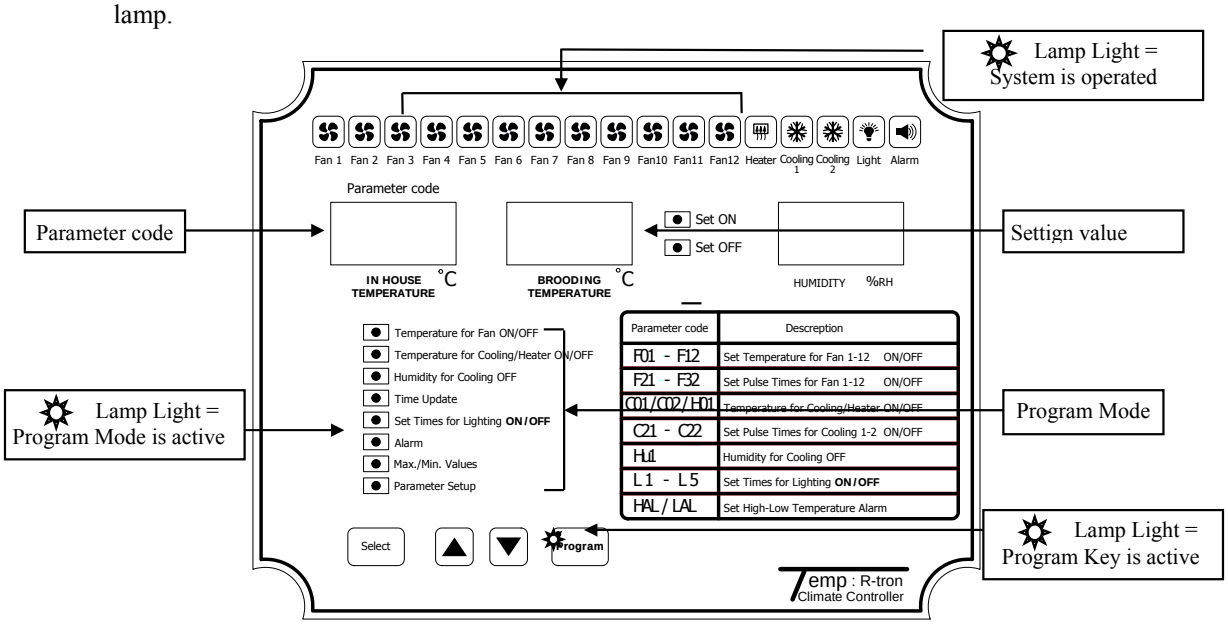
The parameter can be set when the power is connected. After the controller being power a few seconds, the displays illuminate and LED lamp light then the controller is ready for setting.

3.3.1 Access to the Program Mode

To change each parameter setting, the user has to access into individual program mode. The lamp of the program mode is light when the access is ready for further parameter setting.

The access of each program mode will keep on setting status for 30 second after the last keying. Hereafter the controller automatically returns to the general view.

To return to the general view manually, press “Select” key until no light of Program Mode lamp.



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When using the “Parameter Setup” program mode, the controller will display as shown in the above fig. 3.3.1

Press [Select] and go to “Program Mode” the red code reads
Press up and down change “Parameter Code”
Press program if you wish to change value setting and reconfirm.

SETTING THE TEMPERATURE FOR FAN OPERATION		
Set temperature to turn Fan ON/OFF and set timer for Fan ON/OFF 1. Set temperature to turn Fan 1-12 “ON” using parameter code F01-F12 2. Set temepature to turn Fan 1-12 “OFF” using paremeter code F01-F12 3. Set timer during turn Fan 1-12 “ON” using parameter code F21-F32 4. Set timer during turn Fan 1-12 “OFF” using pareameter code F21-F32		
1. Set temperature to turn Fan 1-12 “ON"		
Step 1 Press the Select button to enter the temperature for Fan ON/OFF programming mode (LED Lamp). The current temperature set point (Red LED number) is displayed along with function code setting indicator “ON” (Red Lamp). Press up or down button to change Parameter Code	**Step 2** Press the Program button if you wish to set the temperature Parameter Code Current temperature set poit for Fan “ON” Set Fan “ON”	**Step 3** Uses up or down buttons to adjust the desired temperature setting for fan “ON” **Step 4** Press Program button to confirm and go to the next programming mode.

---

2. Set temperature to turn Fan 1-12 “OFF”

Step 1
Press the Select button to enter the temperature for Fan ON/OFF programming mode (LED Lamp). The current temperature set point (Red LED number) is displayed along with function code indicator “OFF” (Red Lamp).

Press up or down button to change Parameter Code

Step 2
Press the Program button if you wish to set the temperature

Parameter Code

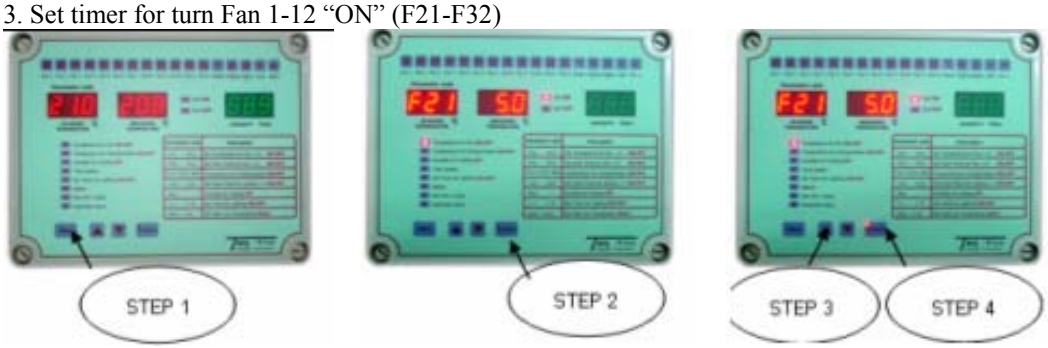
Current temperature set poit for Fan “OFF”

Set Fan “OFF”

Step 3
Uses up or down buttons to adjust the desired temperature setting for fan “OFF”

Step 4
Press Program button to confirm and go to the next programming mode.

3. Set timer for turn Fan 1-12 “ON” (F21-F32)



Step 1
Press the Select button to enter the temperature for Fan ON/OFF programming mode (LED Lamp). The current temperature set point (Red LED number) is displayed along with function code indicator “ON” (Red Lamp).
Press up or down button to

Step 2
Press the Program button if you wish to set the timer

Parameter Code

Current timer set poit for Fan “ON”

Set timer Fan “ON”

Step 3
Uses up or down buttons to adjust the desired timer setting for fan “ON”

Step 4
Press Program button to confirm and go to the next programming mode.

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change Parameter Code

---

4. Set timer for turn Fan 1-12 "OFF" (F21-F32)

Step 1
Press the Select button to enter the temperature for Fan ON/OFF programming mode (LED Lamp). The current temperature set point (Red LED number) is displayed along with function code indicator "OFF" (Red Lamp).

Press up or down button to change Parameter Code

Step 2
Press the Program button if you wish to set the timer

Parameter Code

Current timer set poit for Fan "OFF"

Set timer Fan "OFF"

Step 3
Uses up or down buttons to adjust the desired timer setting for fan "OFF"

Step 4
Press Program button to confirm and go to the next programming mode.

SETTING THE TEMPERATURE FOR PUMP AND HEATER OPERATION

Set temperature to turn Pump and HeterON/OFF and set timer for Fan ON/OFF

1. Set temperature to turn Pump 1-2 "ON" using parameter code C01-C02
2. Set temepature to turn Pump 1-2 "OFF" using paremeter code C01-C02
3. Set temperature to turn Heater "ON" using parameter code H01
4. Set temepature to turn Heater "OFF" using paremeter code H01
5. Set timer for turn Pump 1-2 "ON" using parameter code C21-C22
6. Set timer for turn Pump 1-2 "OFF" using pareameter code F21-F32

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1. Set temperature to turn Pump 1-2 “ON” C01-C02

Step 1
Press the Select button to enter the temperature for Cooling/Heater ON/OFF programming mode (LED Lamp). The current temperature set point (Red LED number) is displayed along with function code setting indicator “ON” (Red Lamp).
Press up or down button to change Parameter Code

Step 2
Press the Program button if you wish to set the temperature

Parameter Code

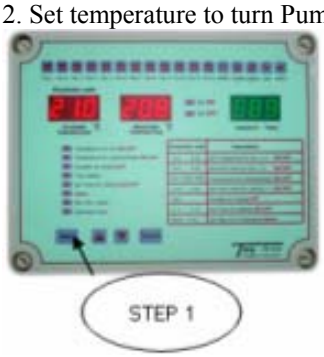
Current temperature set poit for Pump “ON”

Set Pump “ON”

Step 3
Uses up or down buttons to adjust the desired temperature setting for Pump “ON”

Step 4
Press Program button to confirm and go to the next programming mode.

2. Set temperature to turn Pump 1-2 “OFF” C01-C02



Step 1
Press the Select button to enter the temperature for Cooling/Heater ON/OFF programming mode (LED Lamp). The current temperature set point (Red LED number) is displayed

Step 2
Press the Program button if you wish to set the temperature

Parameter Code

Current temperature set poit for Pump “OFF”

Step 3
Uses up or down buttons to adjust the desired temperature setting for Pump “OFF”

Step 4
Press Program button to confirm and go to the next programming mode.

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along with function code setting indicator “OFF” (Red Lamp).	Set Pump “OFF”

---

3. Set temperature to turn Heater “ON” H01
The heater is activate when the temperature is lower than the set point.
The Fan 12 must be setted in the Parameter Setup Mode before working on this Parameter Code.

Step 1
Press the Select button to enter the temperature for Cooling/Heater ON/OFF programming mode (LED Lamp). The current temperature set point (Red LED number) is displayed along with function code setting indicator “ON” (Red Lamp).
Press up or down button to change Parameter Code

Step 2
Press the Program button if you wish to set the temperature

Parameter Code

Current temperature set poit for Heater “ON”

Set Heater “ON”

Step 3
Uses up or down buttons to adjust the desired temperature setting for Heater “ON”

Step 4
Press Program button to confirm and go to the next programming mode.

---

4 Set temperature to turn Heater “OFF” H01
The heater is deactivate when the temperature is higher than the set point.
The Fan 12 must be setted in the Parameter Setup Mode before working on this Parameter Code.

Step 1
Press the Select button to enter the temperature for Cooling/Heater ON/OFF programming mode (LED Lamp). The current temperature set point (Red LED number) is displayed along with function code setting indicator “OFF” (Red Lamp).
Press up or down button to change Parameter Code

Step 2
Press the Program button if you wish to set the temperature

Parameter Code

Current temperature set poit for Heater “OFF”

Set Heater “OFF”

Step 3
Uses up or down buttons to adjust the desired temperature setting for Heater “OFF”

Step 4
Press Program button to confirm and go to the next programming mode.

5. Set timer for turning Pump “ON” C21-C22

Step 1
Press the Select button to enter the temperature for Cooling/Heater ON/OFF programming mode (LED Lamp. The current timer set point (Red LED number is displayed along with function code setting indicator “ON” (Red Lamp).

Step 2
Press the Program button if you wish to set the timer

Parameter Code

Current timer set point for Pump “ON”

Set Pump “ON”

Step 3
Uses up or down button to adjust the desired timer setting for Pump “ON”

Step 4
Press Program button to confirm and go to the next programming mode.

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6. Set timer for turning Pump “OFF” C21-C22

Step 1
Press the Select button to enter the temperature for Cooling/Heater ON/OFF programming mode (LED Lamp. The current timer set point (Red LED) number is displayed along with function code setting indicator “OFF” (Red Lamp).

Step 2
Press the Program button if you wish to set the timer

Parameter Code

Current timer set point for Pump “OFF”

Set Pump “OFF”

Step 3
Uses up or down button to adjust the desired timer setting for Pump “OFF”

Step 4
Press Program button to confirm and go to the next programming mode.

SET HUMIDITY FOR COOLING “OFF” HU01

The cooling pump is deactivated when the humidity is higher than the set point.

Step 1
Press the Select button to enter the Humidity for Cooling OFF programming mode (LED Lamp). The current humidity set point (Red LED number is displayed along with function code setting indicator “OFF” (Red Lamp).

Step 2
Press the Program button if you wish to set the humidity

Parameter Code

Current humidity set point for Pump “OFF”

Set Pump “OFF”

Step 3
Uses up or down button to adjust the desired humidity setting for Pump “OFF”

Step 4
Press Program button to confirm and go to the next programming mode.

TIME UPDATE

1. Set Time Clock

Step 1
Press the Select button to enter the Time Update programming mode (LED Lamp). The current time (Red LED) number is displayed.

Step 2
Press the Program button if you wish to set the time.

Step 3
Uses up or down button to adjust the time.

Step 4
Press Program button to confirm

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2. Set Date/Month/Year

Step 1
Press the Select button to enter the Time Update programming mode (LED Lamp). The current time (Red LED) number is displayed.

Step 2
Press the Program button if you wish to set the date/montht/year.

Step 3
Uses up or down button to adjust the date

Step 4
Press Program button to confirm

Set Time for Lighting ON/OFF

1. Set time turn light “ON” L1-L5

Step 1
Press the Select button to enter the Set Time for Lighting ON/OFF programming mode (LED Lamp). The current time turn light “ON” (Red LED) number is displayed.

Step 2
Press the Program button if you wish to set the time.

Parameter Code

Current time set for turning light “ON”

Set Light “ON”

Step 3
Uses up or down button to adjust the time

Step 4
Press Program button to confirm and go to the next programming mode.

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2. Set timer turn light “OFF” L1-L5

Step 1
Press the Select button to enter the Set Time for Lighting ON/OFF programming mode (LED Lamp). The current time turn light “OFF” (Red LED) number is displayed.

Step 2
Press the Program button if you wish to set the time.

Parameter Code

Current time set for turning light “OFF”

Set Light “OFF”

Step 3
Uses up or down button to adjust the time OFF

Step 4
Press Program button to confirm and go to the next programming mode.

ALARM

1. High temperature alarm is activated when the temperature is higher than the set point.
2. Low temperature alarm is activated when the temperature is lower than the set point.
3. HS, Heat Stress Index is a summation of temperature and humidity.
4. AHS, Amount of Heat Stress Event is activated when the event accumulation is more than the preset.
5. tHA, Time Heat Stress Amount Alarm is activated when the period of time is longer than the preset.
6. tHS, Time Heat Stress Alarm is activated when the time accumulation is more than the preset.
7. tAL, Time for Alarm ON/OFF is activated in pulse ON/OFF like timer.

1. Set High Temperature Alarm HAL

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2. Set Low Temperature Alarm LAL

Step 1
Press the Select button to enter the Alarm programming mode (LED Lamp). The current low temperature alarm (Red LED) number is displayed.

Step 2
Press the Program button if you wish to set the temperature.

Parameter Code

Current low temperature alarm

Step 3
Uses up or down button to set the temperature.

Step 4
Press Program button to confirm and go to the next programming mode.

3. Set Heat Stress HS

Step 1
Press the Select button to enter the Alarm programming mode (LED Lamp). The current heat stress index (Red LED) number is displayed.

Step 2
Press the Program button if you wish to set the index.

Parameter Code

Current Heat Stress index

Step 3
Uses up or down button to set the index.

Step 4
Press Program button to confirm and go to the next programming mode.

4. Set Amount of Heat Stress Event AHS

Step 1
Press the Select button to enter the Alarm programming mode (LED Lamp). The current event (Red LED) number is displayed.

Step 2
Press the Program button if you wish to set the number.

Parameter Code

Number of Heat Stress Event

Step 3
Uses up or down button to set the number of event.

Step 4
Press Program button to confirm and go to the next programming mode.

5. Set Period of Heat Stress Amount Alarm tHA

Step 1
Press the Select button to enter the Alarm programming mode (LED Lamp). The current period of time (Red LED) number is displayed.

Step 2
Press the Program button if you wish to set the time.

Parameter Code

Period of time in heat stress status

Step 3
Uses up or down button to set the period.

Step 4
Press Program button to confirm and go to the next programming mode.

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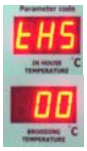
6. Set Total Time in Heat Stress Alarm tHS

Step 1
Press the Select button to enter the Alarm programming mode (LED Lamp). The total time (Red LED) number is displayed.

Step 2
Press the Program button if you wish to set the time.



Parameter Code

Total time in heat stress status

Step 3
Uses up or down button to set the total time.

Step 4
Press Program button to confirm and go to the next programming mode.

7. Set Time for Alarm ON/OFF tAL,

Step 1
Press the Select button to enter the Alarm programming mode (LED Lamp). The time ON/OFF (Red LED) number is displayed.

Step 2
Press up or down button to change Parameter Code

Step 3
Press the Program button if you wish to set the time ON/OFF.

Parameter Code

Time for Alarm ON

Set alarm ON

Parameter Code

Time for Alarm OFF

Set alarm OFF

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DISPLAY Max./Min. Values

This mode display monitoring value today, 1 day ago and 2 days ago.

1. Ht1 (High Temperature) display the highest temperature from the Sensor #1 within 24 hrs.
2. Lt1 (Low Temperature) display the lowest temperature from the Sensor #1 within 24 hrs.
3. ht1 (High Temperature) display the highest temperature from the Sensor #2 within 24 hrs.
4. lt1 (Low Temperature) display the lowest temperature from the Sensor #2 within 24 hrs.
5. HH1 (High Humidity) display the highest humidity within 24 hrs.
6. LH1 (Low Humidity) display the lowest humidity within 24 hrs.
7. tH1 (Time Heat Stress) display the total time in Heat Stress Period within 24 hrs.
8. HS1 (Heat Stress) display the highest index value within 24 hrs.
9. AH1 (Amount Heat Stress) display the amount of Heat Stress Status within 24 hrs.

Step 1
Press the Select button to enter the Max./Min Value programming mode (LED Lamp).

Step 2
Use up and down bottom to change Parameter Code.

Parameter Code

Temperature/Index

Time Dispaly

Step 3
Press Select go to the next programming mode.

PARAMETER SETUP

It is recommended to key in password to protect parameter set up. This programming mode, therefore, will request password before changing.

1. **t1 (Temperature1)** calibrate sensor #1
2. **t2 (Temperature2)** calibrate sensor #2
3. **Hu (Humidity)** calibrate sensor
4. **Hn (House Number)** identify house number for net work link
5. **id (Formula)** programming number for reference.
6. **tsn (Temperature Sensor)** set number of sensor working in the house
7. **Hsn (Humidity Sensor)** set humidity to control cooling pump
8. **F12 (Fan12)** set function of Fan 12 (F12)
9. **dp (Display)** Set Show the value of fan speed or Temperature 2 on Display Brooding
10. **HH (Hysteresis Humidity)** set fluctuation of humidity.
11. **dLy (Delay Timer)** set delaying time to turn fan "ON"
12. **tdL (Time Data Log)** set time to record value (available with Temp View Program)
13. **HHu (High Humidity)** set timer ON/OFF incase of high humidity mode.
14. **FHu (Fan High Humidity)** Set extra-speed of fan when the humidity is high
15. **tFH (Time Fan High Humidity)** Set ON-OFF time to inverter system or fan 12, at high humidity
    - **ON** Set the opening time for inverter system or fan 12
    - **OFF** Set the closing time for inverter system or fan 12
16. **UL (Up-Load)** up load and down load value/ preset parameter available with Data Loader Box.
17. **trL (Test output relay)** test the setting by checking output of all functions.
18. **FSP (Fan Speed)** Show the value of speed percentage of fan in inverter system.

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19. **P (Password)** set password for protection

Calibrate Temperature Sensor #1 & #2 and Humidity Sensor

Step 1
Press the Select button to enter the Parameter Setup programming mode (LED Lamp.

Press up and down button to access parameter code

Step 2
Press the Program button if you wish to calibrate

Parameter Code

Current temperature

The controller might request password. See Password Parameter Setup!

Step 3
Uses up or down button to adjust the accurate temperature

Step 4
Press Program button to confirm and go to the next programming mode.

tsn Set number of sensor in the house
"1" = Single sensor in the middle of the house
"1_2" = Double sensor in the house. Controller use the average values of 2 sensors
Hsn Set Humidity Sensor for cooling pump operation
"0" Humidity control pump
"1" Humidity dose not control pump
F12 Set Fan 12 as a heater
"F" = Fan
"H" = Heater
HH Set fluctuation of humidity control
HH is set 2.00 when humidity for turn cooling pump OFF is set at 70%, the cooling pump will be OFF at 71% and ON at 69. %

Set Password

Step 1
Press the Select button to enter the Parameter Setup programming mode (LED Lamp).
Step 2
Press down button to Parameter Code “P”
Inter Password

Step 3
Press the Program button if you wish to set the password.

Parameter Code

Step 4
Uses down button to set password

Step 5
Press Sellect button to confirm password and go to the next programming mode.

Step 1
Use up and down button to enter the number in the first digit
Step 2
Press select to confirm the first digit

Step 3-4
Repeat the step 1-2 for the second digit password

Step 5
Repeat the step 1-2 for the third digit password

Step 6
Press Select button to confirm password and go to the next programming mode.

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4 THE CODE OF PROGRAM MODE

4.1 Temperature Fan ON/OFF

Code	*Sub Code*	*Parameter*	*Function*	*Factory Setting*	*Max. Value*	*Min. Value*
F01-F12		Set Temperature to fan ON-OFF	Set Temperature to turn On Fan 1-12 Set Temperature to turn Off Fan 1-12	°C		
	ON	Set Temperature for fan ON	Set Temperature using Code F01-F12	25.0 °C	70.0 °C	1.0 °C
	OFF	Set Temperature for fan OFF	Set Temperature using Code F01-F12	24.5 °C	69.9 °C	0 °C
F21-F32		Set Timer during to fan ON-OFF	Set Timer during turn fan 1- 12 ON Set Timer during turn fan 1- 12 OFF	(min:sec)		
	ON	Set Timer during turn Fan ON	Set Timer during using Code F21-F32	5:0	120:0	0:10
	OFF	Set Timer during turn Fan OFF	Set Timer during using Code F21-F32	0:0	120:0	0:0

4.2 Temperature for Cooling/ Heater ON/OFF

Code	*Sub Code*	*Parameter*	*Function*	*Factory Setting*	*Max. Value*	*Min. Value*
C01-C02		Set Temperature to pump ON-OFF	Set Temperature to turn On Pump 1-2 Set Temperature to turn Off Pump 1-2	°C		
	ON	Set Temperature to turn ON Pump	Set Temperature using Code C01-C02	29.0 °C	70.0 °C	1.0 °C
	OFF	Set Temperature to turn OFF Pump	Set Temperature using Code C01-C02	28.0 °C	69.9 °C	0 °C
H01		Set Temperature to Heater ON – OFF	Set Temperature to turn On Heater Set Temperature to turn Off Heater	°C		
	ON	Set Temperature to turn ON Heater	Set Temperature using Code H01	30.0 °C	60.0 °C	0.0 °C
	OFF	Set Temperature to turn OFF Heater	Set Temperature using Code H01	32.0 °C	70.0 °C	1.0 °C
C21-C22		Set Timer during to pump ON-OFF	Set Timer during turn Pump 1-2 ON Set Timer during turn Pump 1-2 OFF	(min:sec)		
	ON	Set Timer during turn Pump ON	Set Timer during using Code C21 – C22	5:0	120:0	0:0
	OFF	Set Timer during turn Pump OFF	Set Timer during using Code C21 – C22	0.0	120:0	0:0

4.3 Humidity for Cooling OFF

Code	*Sub Code*	*Parameter*	*Function*	*Factory Setting*	*Max. Value*	*Min. Value*
Hu1		Set Humidity to Pump OFF	Set Humidity to turn OFF Pump	80.0 %	99.9 %	20.0%

4.4Time Update						
Code	***Sub Code***	***Parameter***	***Function***	***Factory Setting***	***Max. Value***	***Min.V alue***
		Hours : Minutes	Reading time clock	--		
Hrs		Set Hours	Setting of hours time	Hour	23	1
Min		Set Minute	Setting of minute time	Minute	59	1
dy		Set Date	Setting of day	dy	31	1
nt		Set Month	Setting of month	nt	12	1
Yr		Set Year	Setting of year	yr	99	1
4.5 Set Time for Lighting ON/OFF						
Code	***Sub Code***	***Parameter***	***Function***	***Factory Setting***	***Max. Value***	***Min. Value***
L1		Set Time Turn Light ON-OFF Period 1		(Hr:Min)		
	ON	Set ON – Time for light period 1	Setting of required stat for ON – time light period 1	06:00	24:00	00:00
	OFF	Set OFF – Time for light period 1	Setting of required stat for OFF – time light period 1	18:00	24:00	00:00
L2		Set Time Turn Light ON-OFF Period 2				
	ON	Set ON – Time for light period 2	Setting of required stat for ON – time light period 2	00:00	24:00	00:00
	OFF	Set OFF – Time for light period 2	Setting of required stat for OFF – time light period 2	00:00	24:00	00:00
L3		Set Time Turn Light ON-OFF Period 3				
	ON	Set ON – Time for light period 3	Setting of required stat for ON – time light period 3	00:00	24:00	00:00
	OFF	Set OFF – Time for light period 3	Setting of required stat for OFF – time light period 3	00:00	24:00	00:00
L4		Set Time Turn Light ON-OFF Period 4				
	ON	Set ON – Time for light period 4	Setting of required stat for ON – time light period 4	00:00	24:00	00:00
	OFF	Set OFF – Time for light period 4	Setting of required stat for OFF – time light period 4	00:00	24:00	00:00
L5		Set Time Turn Light ON-OFF Period 5				
	ON	Set ON – Time for light period 5	Setting of required stat for ON – time light period 5	00:00	24:00	00:00
	OFF	Set OFF – Time for light period 5	Setting of required stat for OFF – time light period 5	00:00	24:00	00:00

4.6 Alarm						
Code	***Sub Code***	***Parameter***	***Function***	***Factory Setting***	***Max. Value***	***Min. Value***
HAL		Setting High Temperature Alarm	High Temperature Alarm is activated when the temperature is higher than the set point	35.0 °C	70.0 °C	1.0 °C
LAL		Setting Low Temperature Alarm	Low Temperature Alarm is activated when the temperature is lower than the set point	15.0 °C	70.0 °C	0.0 °C
HS		Setting Heat Stress Index	HS, Heat Stress Index is a summation of temperature and Humidity	115	140	100
AHS		Setting Amount of Heat Stress	Amount of Heat Stress Event accumulation is more than the preset	0	100	0
tHA		Set continuous time alarm of heat stress index	Setting of required continuous time when the heat stress value reach period	15	999	1
tHS		Set time alarm of heat stress	Setting of required accumulated time when the heat stress value reach the preset heat stress index 0 = HS alarm is not connected 1-10 = HS time alarm is set 0 = Not use	0	999	0
tAL		Set ON/OFF time of cycle alarm noise	Setting of required ON-time alarm noise	(min)		
	on	Set ON-time for alarm noise	Setting of required ON-time alarm noise	5.0 min	120	2
	off	Set Off-time for alarm noise	Setting of required OFF-time alarm noise	0.0	120	0.2
4.7 Max./Min. Values						
Code	***Sub Code***	***Parameter***	***Function***	***Factory Setting***	***Max. Value***	***Min. Value***
Ht1		Maximum indoor temperature today	Reading of highest measured indoor temperature in the house during today	°C		
	--.-	Reset maximum temperature	Clear setting of lowest measured temperature	°C		
Lt1		Minimum indoor temperature today	Reading of lowest measured indoor temperature in the house during today	°C		
	--.-	Reset minimum temperature	Clear setting of lowest measured temperature	°C		
ht1		Maximum outdoor temperature today	Reading of highest measured outdoor temperature in the house during today	°C		
	--.-	Reset maximum temperature	Clear setting of lowest measured temperature	°C		
lt1		Minimum outdoor temperature today	Reading of lowest measured outdoor temperature outside the house during today	°C		
	--.-	Reset minimum temperature	Clear setting of lowest measured temperature	-- °C		
HH1		Maximum humidity during today	Reading of highest measured humidity in the house during today	%RH		
	--.-	Reset maximum humidity	Clear setting of lowest measured humidity	%RH		

LH1		Minimum humidity today	Reading of lowest measured humidity in the house during today	%RH		
	--.-	Reset minimum humidity	Clear setting of lowest measured humidity	%RH		
tH1		Hour:minute of Heat Stress today (The longest case)	Reading of time longest measured Heat Stress in the house during today	-	-	-
	--.-	Reset longest Heat Stress	Clear setting of longest measured Heat Stress			
HS1		Accumulated time of Heat Stress Index today	Reading of accumulated time measured Heat Stress Index in the house during today	minute		
	--.-	Reset Heat Stress Index	Clear setting of Heat Stress Index	minute		

Code	***Sub Code***	***Parameter***	***Function***	***Factory Setting***	***Max. Value***	***Min. Value***
AH1		Amount of Heat Stress Index Events today	Reading of amount measured Heat Stress Index in the house during today	-	-	-
	--.-	Reset Heat Stress Index	Clear setting of Heat Stress Index			
Ht2		Maximum indoor temperature yesterday	Reading of highest measured temperature in the house during yesterday	°C		
Lt2		Minimum indoor temperature yesterday	Reading of lowest measured temperature in the house during yesterday	°C		
ht2		Maximum outdoor temperature yesterday	Reading of highest measured temperature in the house during yesterday	°C		
lt2		Minimum outdoor temperature yesterday	Reading of lowest measured temperature outside the house during yesterday	°C		
HH2		Maximum humidity yesterday	Reading of highest measured humidity in the house during yesterday	%RH		
LH2		Minimum humidity yesterday	Reading of lowest measured humidity in the house during yesterday	%RH		
tH2		Hour:minute of Heat Stress yesterday (The longest)	Reading of time longest measured Heat Stress in the house during yesterday	-	-	-
HS2		Accumulated time of Heat Stress Index yesterday	Reading of accumulated time measured Heat Stress Index in the house during today	minute		
AH2		Number time of Heat Stress Index yesterday	Reading of number time measured Heat Stress Index in the house during yesterday	-	-	-
Ht3	--.-	Maximum indoor temperature 2 days ago	Reading of highest measured temperature in the house during 2 days ago	°C		
Lt3		Minimum indoor temperature 2 days ago	Reading of lowest measured temperature in the house during 2 days ago	°C		
ht3		Maximum outdoor temperature 2 days ago	Reading of highest measured temperature in the house during 2 days ago	°C		
lt3	--.-	Minimum outdoor temperature days ago	Reading of lowest measured temperature outside the house during 2 days ago	°C		
HH3		Maximum humidity 2 days ago	Reading of highest measured humidity in the house during 2 days ago	%RH		
LH3		Minimum humidity days ago	Reading of lowest measured humidity in the house during 2 days ago	%RH		
tH3		Hour:minute of Heat Stress 2 days ago (The longest)	Reading of time longest measured Heat Stress in the house during 2 days ago	-	-	-

HS3		Accumulated time of Heat Stress Index 2 days ago	Reading of accumulated time measured Heat Stress Index in the house during today	minute		
AH3		Number time of Heat Stress Index 2 days ago	Reading of number time measured Heat Stress Index in the house during 2 days ago	-	-	-

4.8 Parameter Setup

Code	***Sub Code***	***Parameter***	***Function***	***Factory Setting***	***Max. Value***	***Min. Value***
t.1		Calibrating Temperature Sensor #1	Calibrating of desired temperature value for the temperature sensor #1	°C	-12.5	12.5
t.2		Calibrating Temperature Sensor #2	Calibrating of desired temperature value for the temperature sensor #2	°C	-12.5	12.5
Hu		Calibrating Humidity Sensor	Calibrating of desired humidity value for the humidity sensor	%RH	-12.5	12.5
Hn		Set house number	Reading/setting house number	"01"Hn	"99"	"01
Id		Set controller ID	Reading/setting identification formula setting	"000"id	"999"	"000

Deleted: ID

Deleted: identification

Code	***Sub Code***	***Parameter***	***Function***	***Factory Setting***	***Max. Value***	***Min. Value***
tSn		Set single or double indoor temperature sensor	Setting of required temperature sensor system in the house	1	1_2	1
			1 = Single indoor temperature sensor		1_2	1
			1_2 = Double indoor temperature sensor		1_2	1
HSn		Set humidity control for cooling system	0 = Humidity is not active, reading humidity only	1	1	0
			1 = Humidity is active		1	0
F-12		Set heater	Fan 12 can control ventilation Fan or heater	F		
			F = Ventilation control H = Heater control			
CP2		Set Heater	Cooling 2 can control Pump or Heater C = Cooling Pump H = Heater control	C		
dp		Set Show Fan speed or Temperature 2	FSP = Show Fan Speed t.2 = Show Temperature Temp Sensor #2			
HH		Set humidity hysteresis	Setting of required humidity	2HH	10	1
dLY		Set delay timer	Setting of required delay timer before start system control	3 dLY	180	3
tdL		Set time per event of data collection	Setting time of collecting data such every 30 minute or every 60 minute	30 min.		
HHu		Set ON/OFF-time for cooling, at preset high humidity	Setting of required cooling pump operation when the humidity reaches preset high humidity	-	-	-
FHu		Set extra-speed of fan when the humidity is high	Setting increase the speed of fan , user no have the inverter system, the fan 12 would be open	10	100	0
tFH	On	Set the opening time for inverter system or fan 12	Setting of the ON-time inverter system or fan 12, at high humidity	5.0 min	120	0.1
	off	Set the closing time for inverter system or fan 12	Setting of the OFF-time inverter system or fan 12, at high humidity	--.- min	120	0
UL		Upload / download setting parameter	The Data Loader can inter-transferred with the controller	-	-	-
	UL	Upload setting parameter	Upload parameter from the controller to the Data Loader	-	-	-

	dL	Download setting parameter	Download parameter from the Data Loader to the controller	-	-	-
trl		Test output relay	Testing of every output relay for checking of individual component operation	-	-	-
FSP		Show the value of speed percentage of fan in inverter system.	Manipulated and check the condition of inverter system	0	100	0
P		Change password	It requires to enter the old password before changing to new password	-	-	-
	nP	Setting new password	Setting of desired new password	-	-	-